Corporate Project for
Integrated/Risk-Driven Spent Nuclear Fuel Disposition

Briefing to NSNFP Strategy Meeting

22 April 2003

Christine Gelles, Project Manager

Briefing Outline

- Overview of the Corporate SNF Project
- EM/RW Integration and New Developments
- Pathforward: Re-evaluation of Corporate Project Scope and Schedule
- Subproject Reports
- Open Discussion

Corporate SNF Project Team -- History

Feb 2002	EM published Top To Bottom Review
May 2002	Corporate Project Teams announced
July 2002	Project Manager selected
Aug 2002	Corporate Project Team recruited
Sept 2002	Preliminary project planning; site reviews initiated
17 Oct 2002	CD-0, Approval of Mission Need, provided by Acquisition Executive (EM-1)
Dec 2002	Asst. Project Manager selected; conceptual design completed
17 Jan 2003	**CD-1, Approval of Project/Systems Requirements and Alternatives, provided by AE**
Jan 2003	Status briefing to Deputy Secretary, Under Secretary and DOE senior management

Corporate Project Team

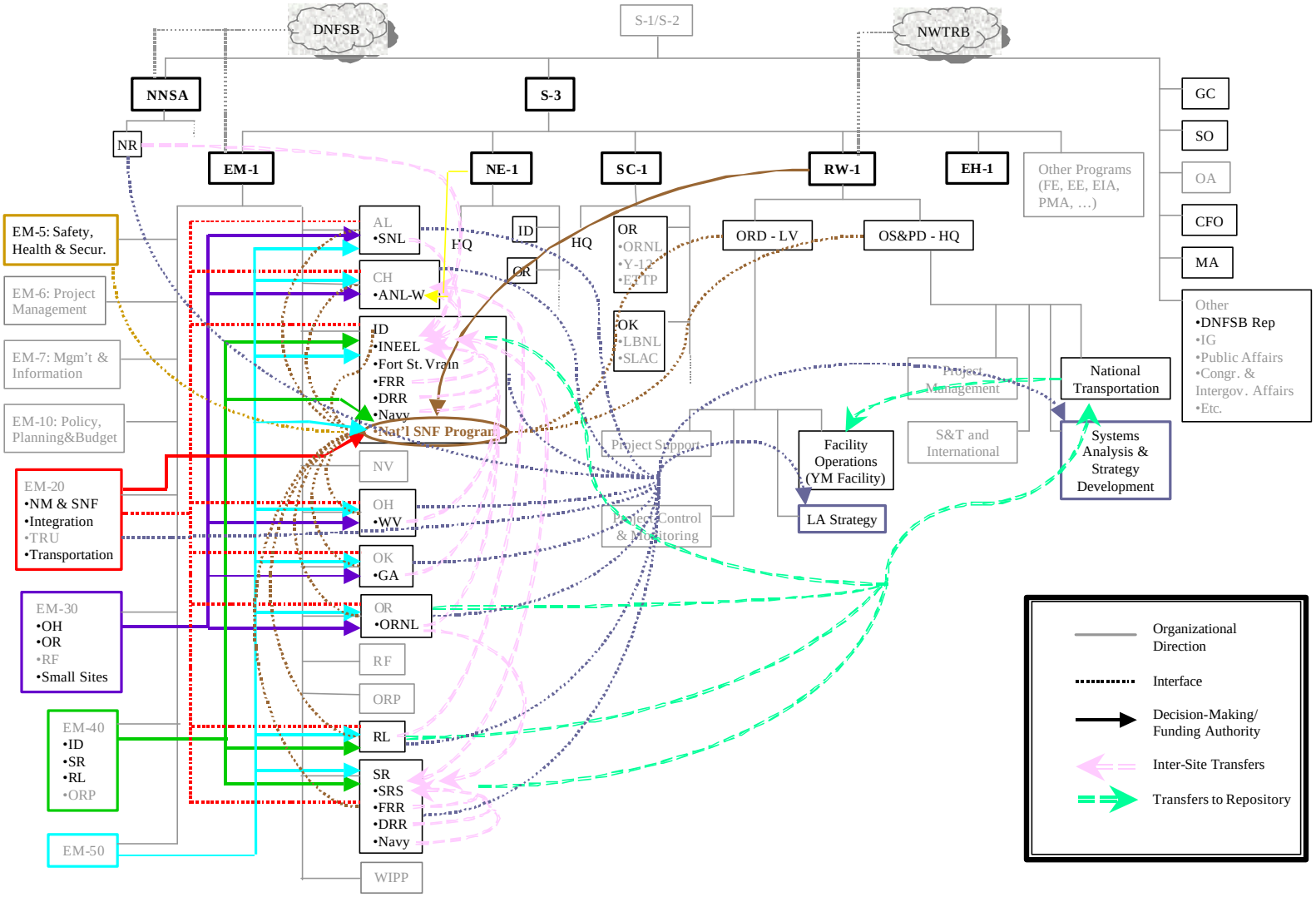
Christine Gelles, EM-HQs
Corporate Project Manager

Mark Senderling, RW/HQs
Asst. Project Manager

Keith Klein, EM – RL
Corporate Project Advisor

RW/ORD	--	Paul Harrington/Joe Price
NE/HQs	--	Bob Lange/Ed Branagan
NR/HQs	--	John McKenzie
EH/HQs	--	Eric Cohen
GC/HQs	--	Nick DiNunzio
EM/Idaho	--	Mark Arenaz
EM/Idaho	--	*Pete Dirkmaat*/Mary Willcox
EM/Richland	--	Mark French
EM/SRS	--	Randall Ponik/Billy Chambers
EM/NETL	--	*Jeanine Hoey*
EM/HQs	--	Howard Eckert
EM /HQs	--	Dinesh Gupta

A Systems/Project Approach is Required to Address the Complexity of Current DOE SNF Management



Corporate SNF Project Overview

Our Initial Findings Validate the Top-to-Bottom Review and Highlight Need for DOE-Wide Integration

- Current baselines are not fully aligned.
- True lifecycle baselines are not yet fully developed.
- Current management configuration does not promote optimization and appears to impede change.
- A brief window exists to achieve integration and optimize disposition of all DOE SNF.
- Key technical decisions -- related to SNF treatment, packaging, storage and shipment – are heavily interdependent.

Key SNF Treatment, Packaging, Storage, and Shipment Issues Are Heavily Inter-Dependent

DECISIONS AND ALTERNATIVES	Read Down Each Column To See How That Decision Is Affected by the Other Decisions Listed Down the Left Side of Table									
	Packaging Options Affected by:	**SNF vs RH-TRU Affected by:**	**Na Fuel Treatment Affected by:**	**Al Fuel Treatment Affected by:**	**Interim Storage Affected by:**	**EM Load Out Facilities Affected by:**	**DRR Direct Shipment Affected by:**	**FSV Direct Shipment Affected by:**	**MCO Transportability Affected by:**	**Transportation Affected by:**
Packaging Options • Standard canister • Bare (all intact fuel) • Partial standard canister • MPC • DU steel cermet • OR canister • MCO • YM waste package			• Packaging decision may affect treatment requirements	• Packaging decision may affect treatment requirements	• Packaging decision may require one or more sites to revise storage configuration	• Packaging decision is a key driver of load out facility requirements	• Packaging decision may constrain direct shipment option	• Packaging decision may constrain direct shipment option	• Packaging decision may render this issue moot	• Packaging decision is a key driver of transportation system requirements
SNF vs. RH-TRU • Disposition some SNF as RH TRU						• SNF/RH-TRU policy decision could require storage changes				• Waste/material classification may affect transportation system requirements
Na Fuel Treatment • EMT • MEDEC • Ammonia • No treatment	• Treatment decision may affect type and number of canisters required				• Treatment decision may constrain interim storage options	• Treatment decision may constrain EM load out facility options				• Treatment decision may affect transportation system requirements
Al Fuel Treatment • Melt & dilute • No treatment • Canyons	• Treatment decision may affect type and number of canisters required				• Treatment decision may constrain interim storage options	• Treatment decision may constrain EM load out facility options	• Treatment decision may constrain direct shipment option			• Treatment decision may affect transportation system requirements
Interim Storage • SR/ID swap • No SR/ID swap • ID consolidate future • SR consolidate future • RL consolidate future • YM lag storage	• Storage decision may affect feasibility of one ore more packaging options		• Storage decision may constrain treatment options	• Storage decision may constrain treatment options		• Storage decision may affect feasibility of one ore more EM load out facility options	• Storage decision may constrain direct shipment option	• Storage decision may constrain direct shipment option		• Storage decision may affect transportation system requirements
EM Load Out Facilities • ID Foster Wheeler project • ID Cancel/revise FWP • SR Treat/storage facil. • SR Load out facility TBD • RL load out facility TBD	• Load out facility decision may constrain packaging options		• Load out facility decision may constrain treatment options	• Load out facility decision may constrain treatment options	• Load out facility decision may constrain interim storage options		• Load out facility decision may constrain direct shipment option	• Load out facility decision may constrain direct shipment option	• Load out facility decision may affect this issue	• Load out facility decision is a key driver of transportation system requirements
DRR Direct Shipment • YM direct • Via EM site				• DRR shipment decision may constrain treatment options	• DRR shipment decision may constrain interim storage options	• DRR shipment decision may constrain EM load out facility options				• DRR shipment decision may affect transportation system requirements
FSV Direct Shipment • YM direct • Via ID	• FSV shipment decision may constrain packaging options				• FSV shipment decision may constrain interim storage options					• FSV shipment decision may affect transportation system requirements
MCO Transportability • Ship/dispose in MCO • Repackage	• MCO transportability may constrain packaging options				• MCO transportability decision may constrain interim storage options	• MCO transportability decision may constrain EM load out facility options				• MCO transportability decision may affect transportation system requirements
Transportation • System issues/options TBD	• Trans. system requirements may constrain packaging options		• Transportation system requirements may constrain treatment options	• Transportation system requirements may constrain treatment options		• Transportation system requirements may constrain load out facility options	• Transportation system requirements may constrain direct shipment option		• Transportation system requirements may constrain MCO transportability	

Indicates impacts that may constrain options and therefore likely must be resolved before the impacted decision can be finalized

Indicates both decisions impact each other to such a degree they must be resolved in tandem

Transportation decisions were eliminated from the color-coded analysis because it is assumed transportation decisions will reflect the results of the other decisions.

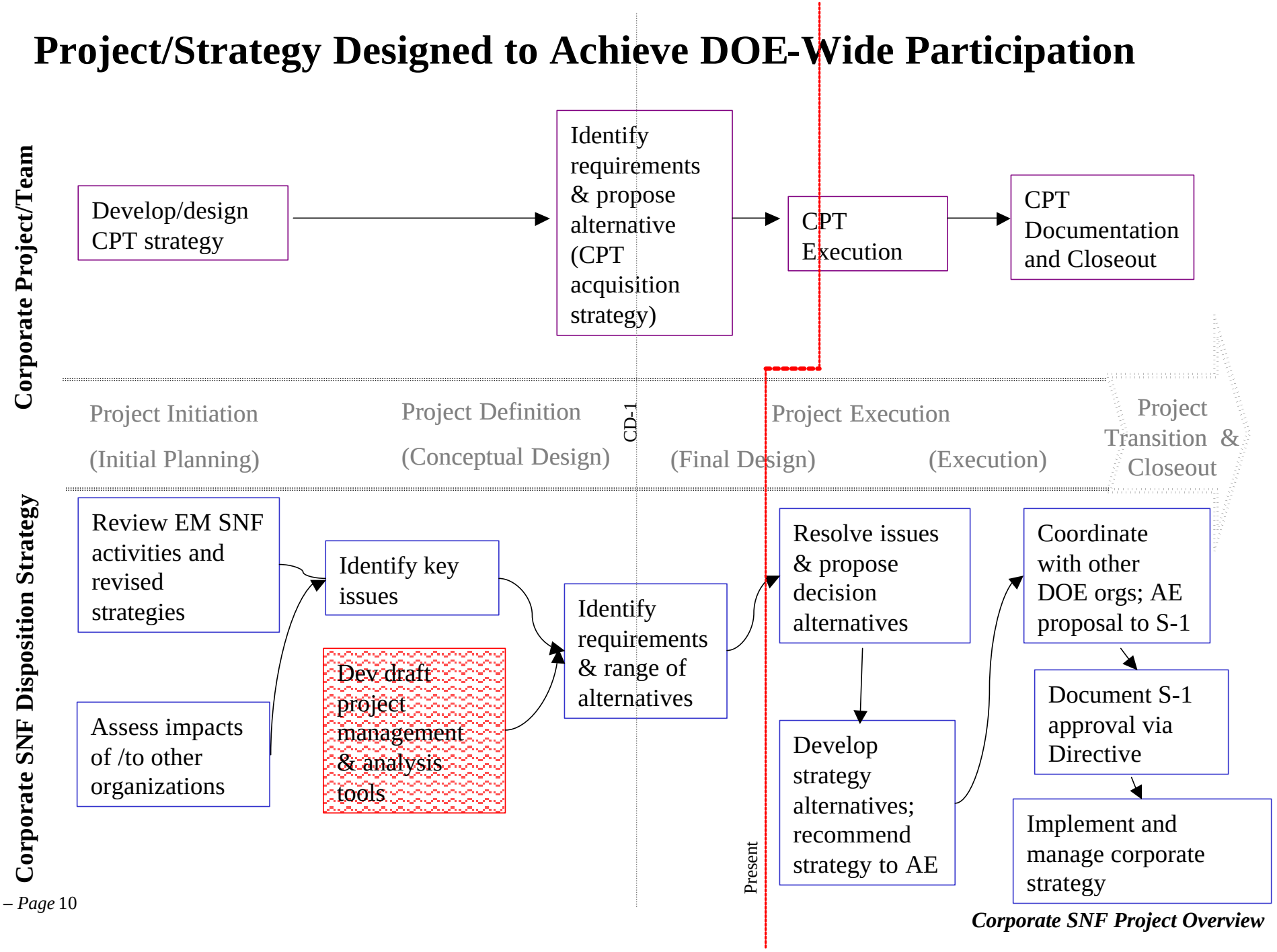
A Systems Solution – *Corporate SNF Disposition Strategy* – is Needed to Manage and Dispose of DOE's SNF…

- To align and integrate DOE programmatic baselines
- To increase confidence in DOE's SNF disposition plans
- To identify opportunities for project acceleration and life-cycle cost reduction
- To inform future realignment of SNF management responsibilities
- Supported by integrated SNF project management tools

Now is the Time for Integration…

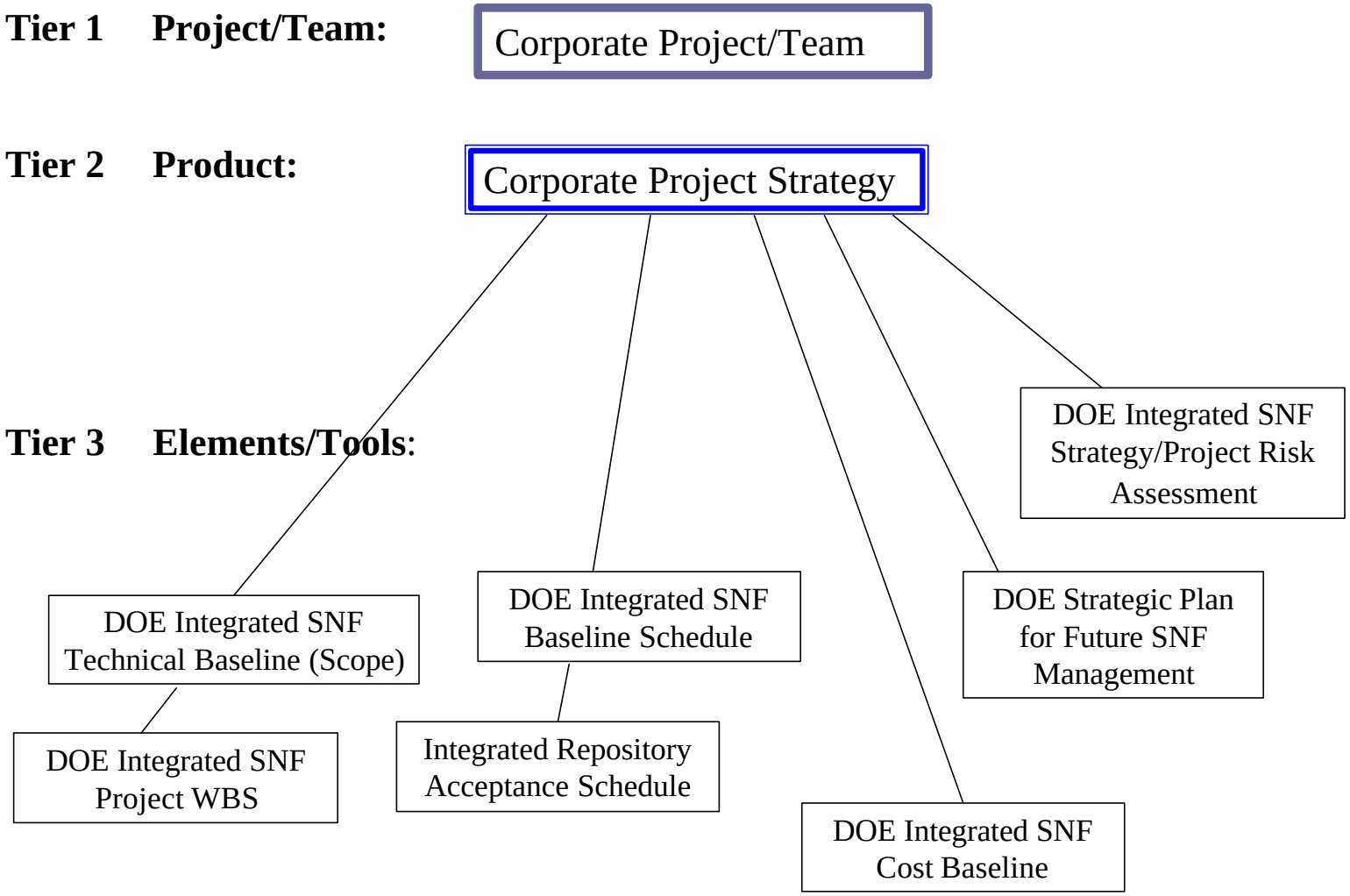
- Extensive reviews have identified the core technical and programmatic issues.
- In response to the "Top to Bottom Review" of the EM Program
  - EM is refining its focus and mission.
  - Site specific strategies are changing to reduce risks, schedule and cost.
- There is real progress towards the repository, including
  - Preparation of License Application.
  - Finalizing design and requirements.
  - Detailed planning for transportation systems.

Project/Strategy Designed to Achieve DOE-Wide Participation



Corporate SNF Project Overview

Corporate Project and Corporate Strategy Design



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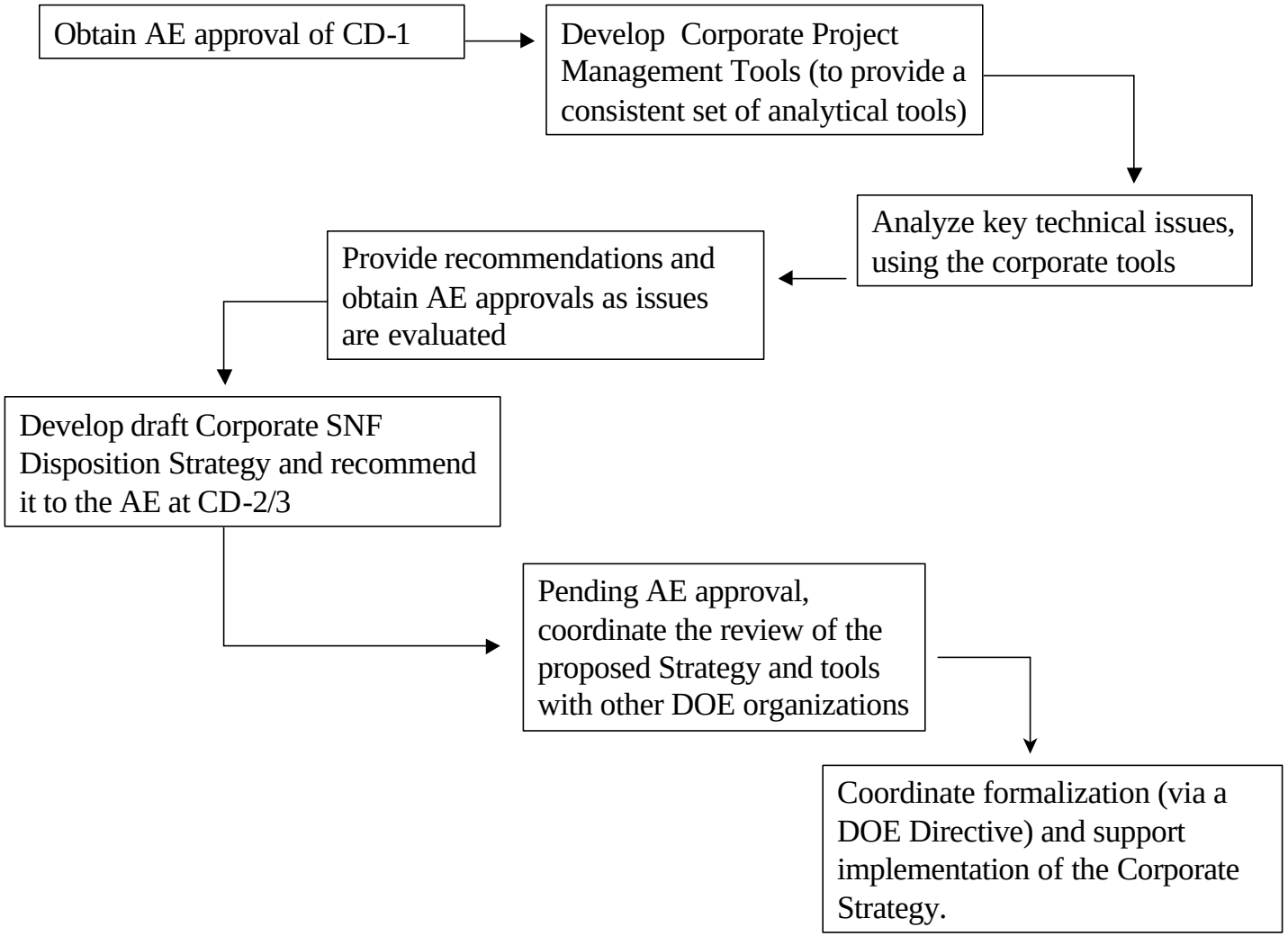
Proposed Alternative
Corporate SNF Disposition Strategy –



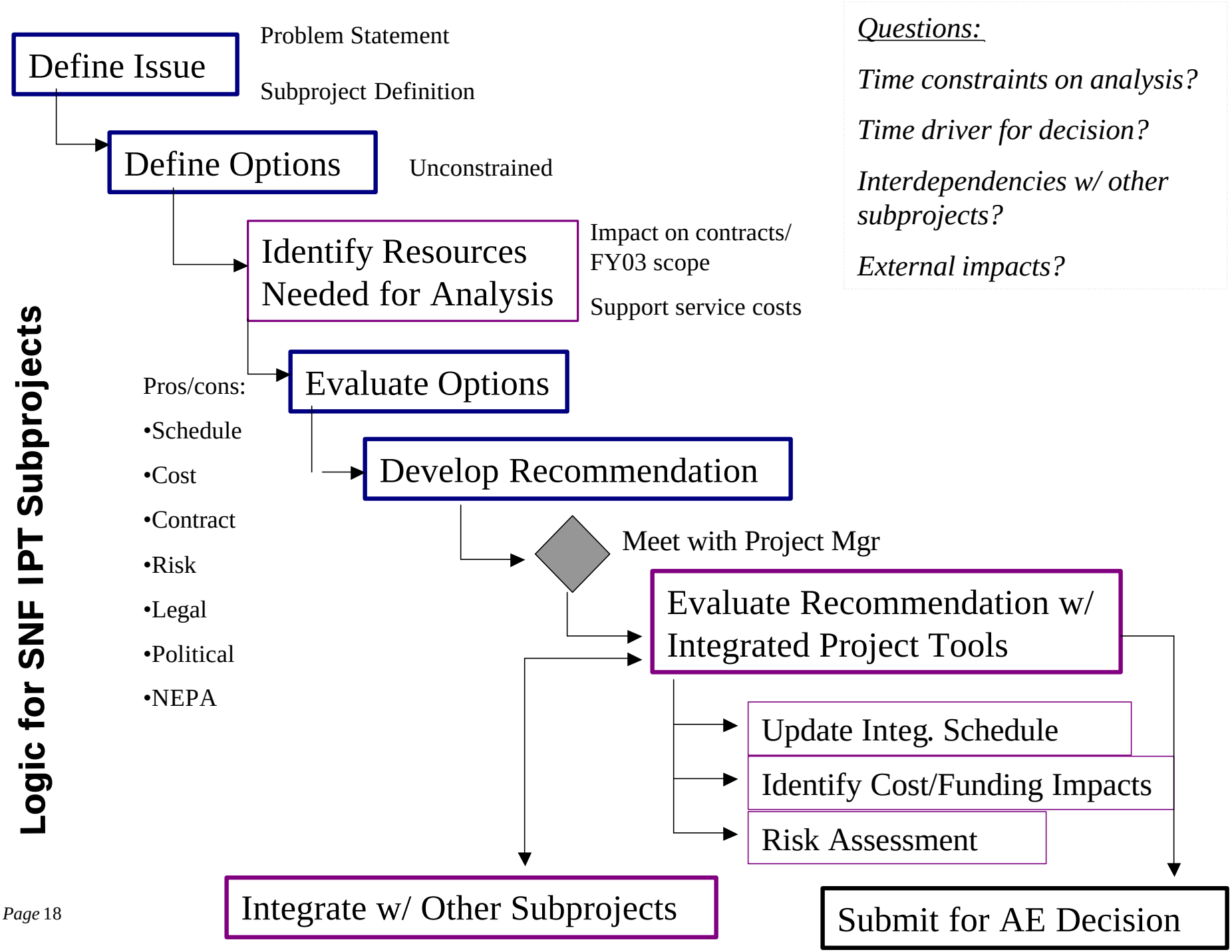
Corporate Project Deliverables Guide Analysis and Future SNF Disposition Plans

- Set of Integrated Project Management Tools
  - — Integrated SNF Project Work Breakdown Structure
  - — Integrated SNF Schedule Baseline
    - —Revised Integrated Repository Acceptance Schedule
  - — Integrated SNF Cost Baseline
  - — Integrated SNF Technical Baseline
  - — Integrated SNF Strategy/Project Risk Assessment
- **Corporate SNF Disposition Strategy**
  - — Clearly defined policy and plans for DOE SNF Disposition
- Draft Strategic Plan for Future SNF Management

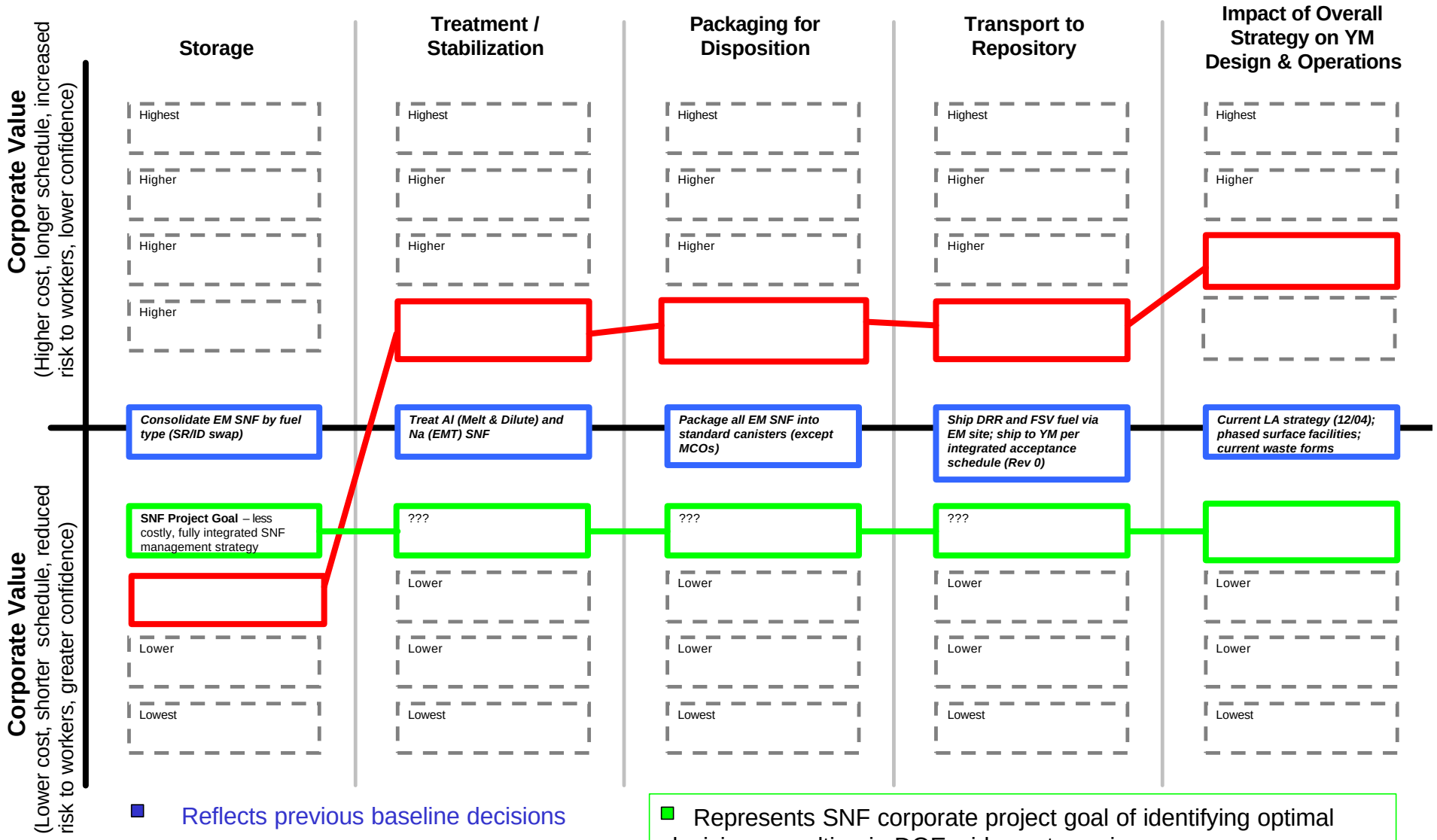
Analytical Subprojects

- Reliance on the Standard Canister
- Treatment of aluminum-based SNF
- Treatment of sodium-bearing SNF
- "Regionalization" – Interim SNF Storage at EM Sites
- MCO transportability
- Direct shipment from research reactors to repository
- SNF Classification (vs. RH TRU)
- Excess/Un-irradiated Materials
- Transportation
- NEPA

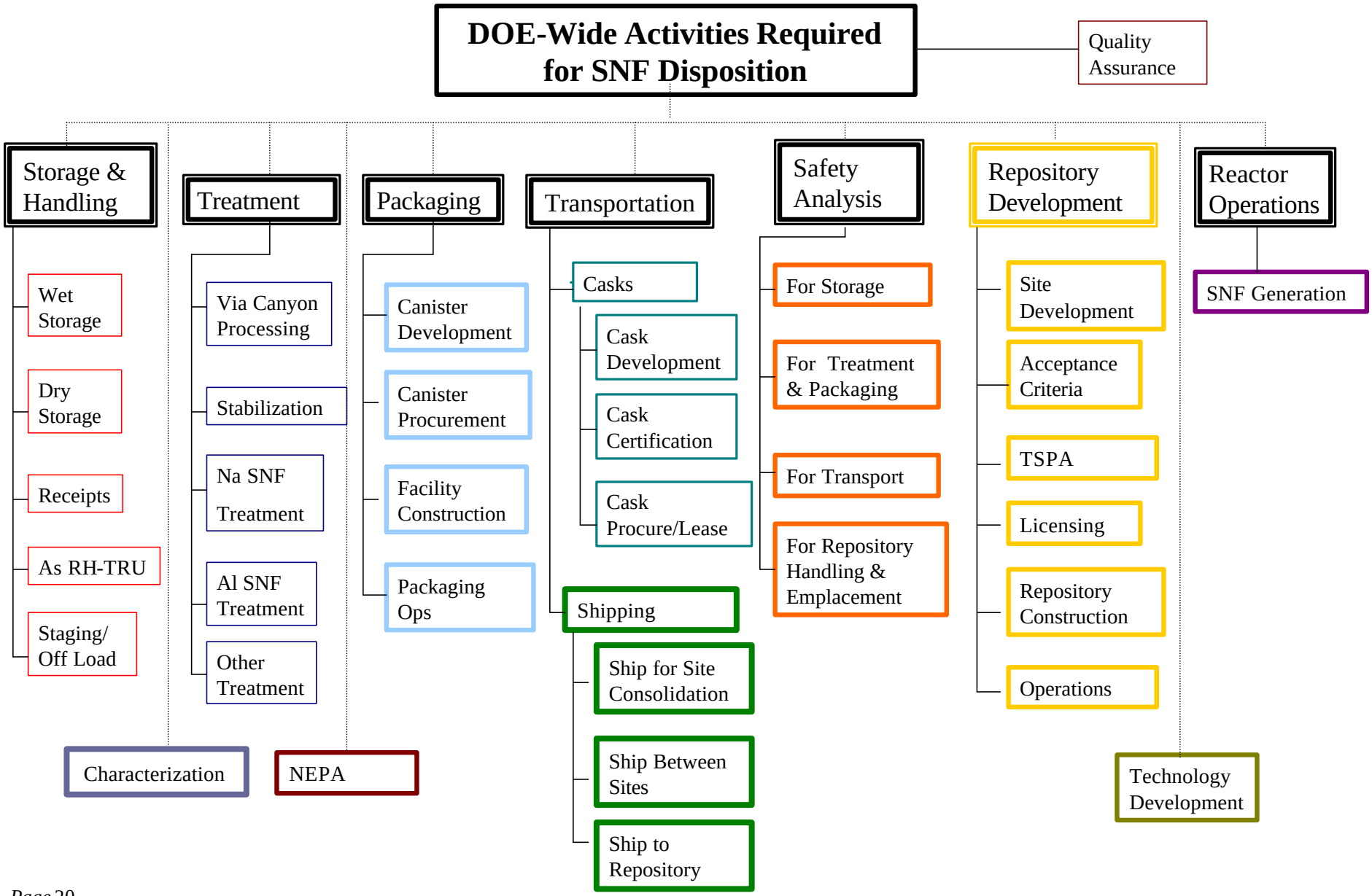
- Transfer of SNF responsibilities from EM to RW
- Transfer of SNF management responsibilities at INEEL


Logic for SNF IPT Subprojects
Define Issue
Problem Statement
Subproject Definition
Define Options
Unconstrained
Identify Resources Needed for Analysis
Impact on contracts/ FY03 scope
Support service costs
Evaluate Options
Pros/cons:
•Schedule
•Cost
•Contract
•Risk
•Legal
•Political
•NEPA
Develop Recommendation
Meet with Project Mgr
Evaluate Recommendation w/ Integrated Project Tools
Update Integ. Schedule
Identify Cost/Funding Impacts
Risk Assessment
Integrate w/ Other Subprojects
Submit for AE Decision
Questions:
Time constraints on analysis?
Time driver for decision?
Interdependencies w/ other subprojects?
External impacts?

Example Of How Impacts of Key Decisions or Strategy Alternatives Can Be Compared To Facilitate Decision Making



Defining & Aligning Work Scope is the First Step Toward Simplification



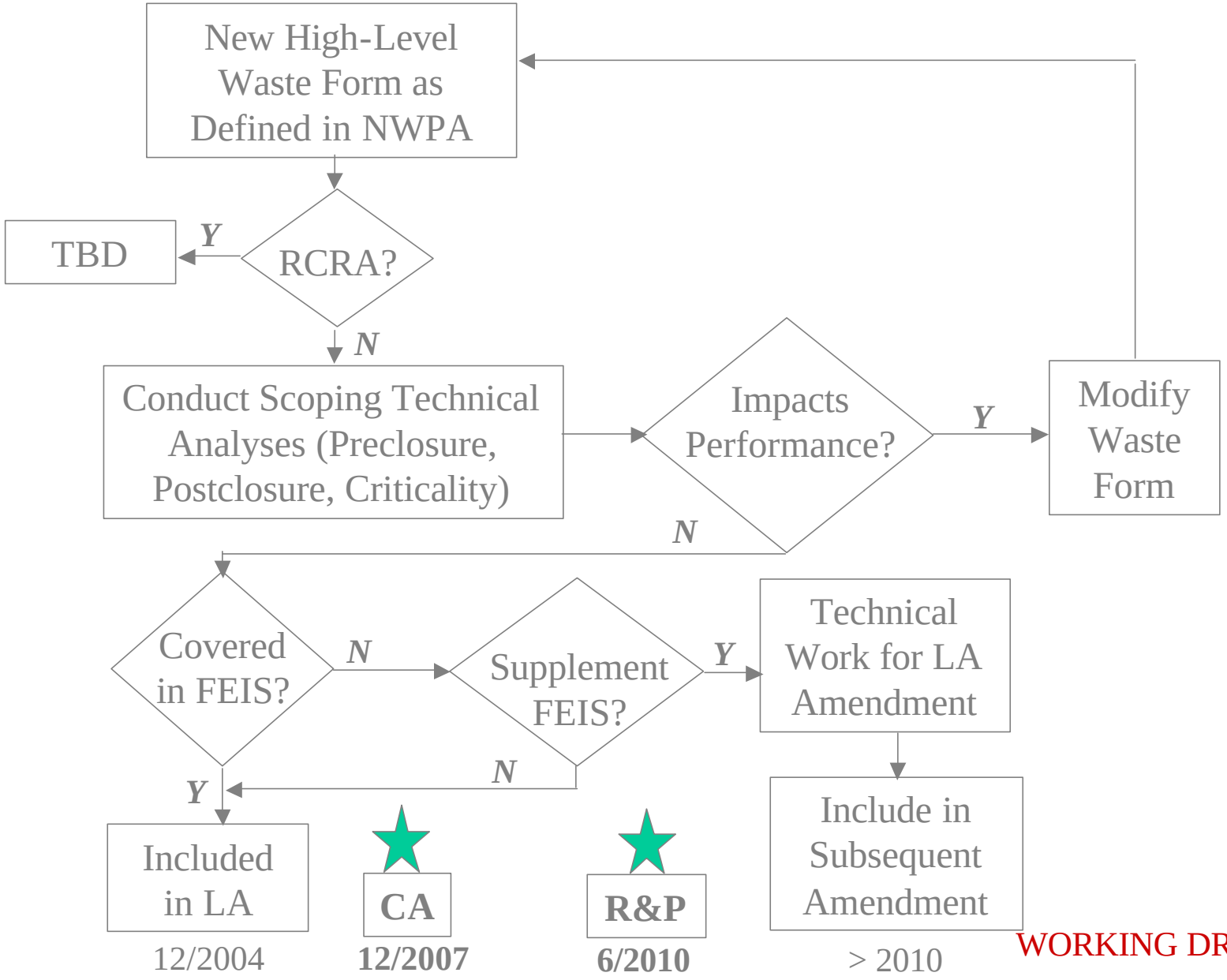
New Developments

- Integrating revised SNF and HLW disposition plans
  - Expanding integrated project management tools
- Formalizing EM/RW Integration
- Management/Disposition Alternatives
  - EM Optimized Storage Case
- Open Issues

Emergent Issues Impacting Corporate Project

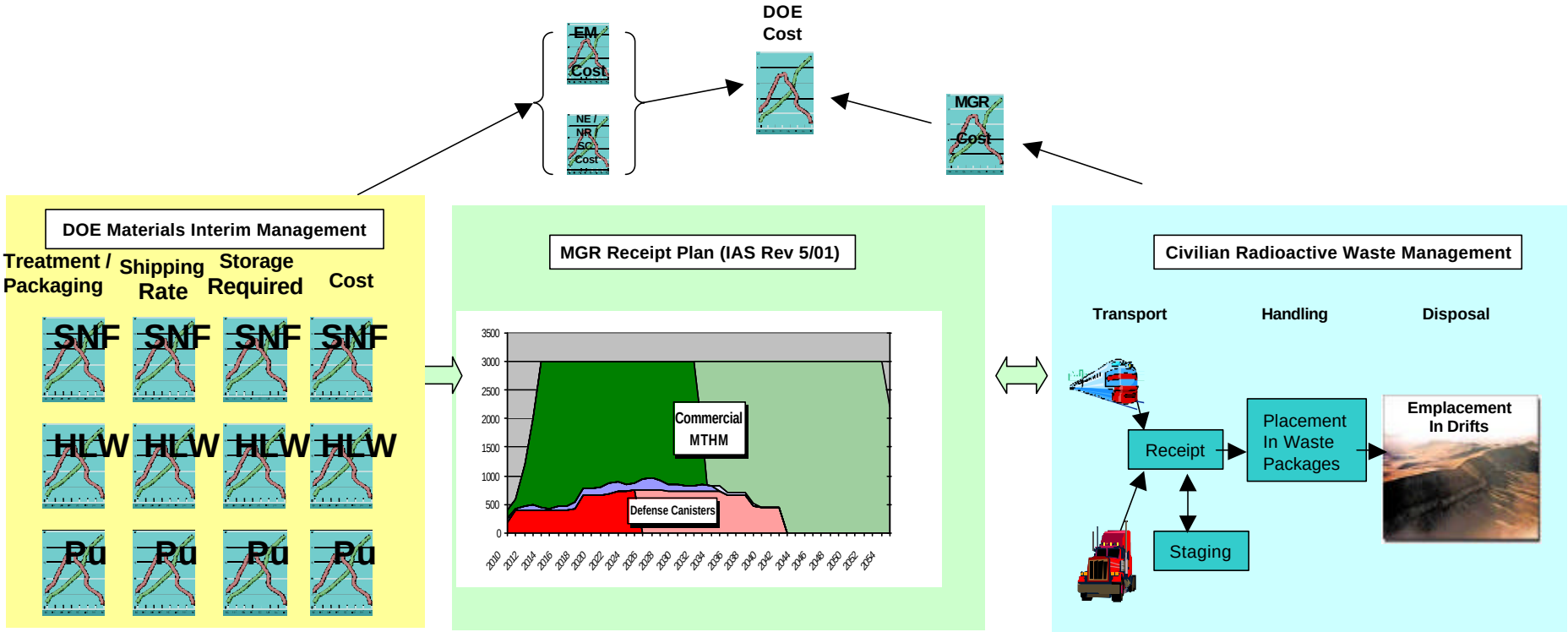
- Waste form details are a major driver in systems integration
- EM is re-evaluating plans for interim management of SNF (and HLW and excess Pu)
  - Impacts initial Integrated Acceptance Schedule
  - Possible alternative waste forms
- RW current licensing strategy and schedule may not accommodate systems-wide analysis of alternative waste forms
  - Qualitative evaluations undertaken by RW
  - Agreement in principle for evaluating future waste forms
- RW evaluating alternate operating and transportation scenarios
  - Variables are dynamic
- Increasing attention on EM/RW integration
  - “Performance based LA”
  - External reviewers

Proposed Process for Alternative Waste Forms

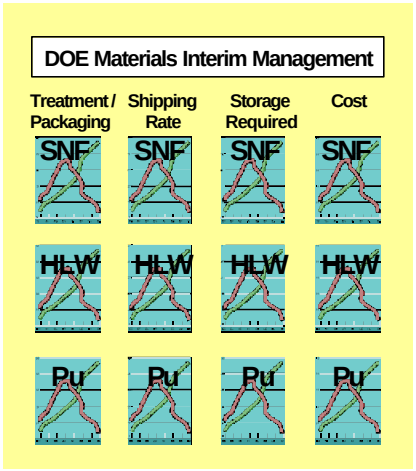


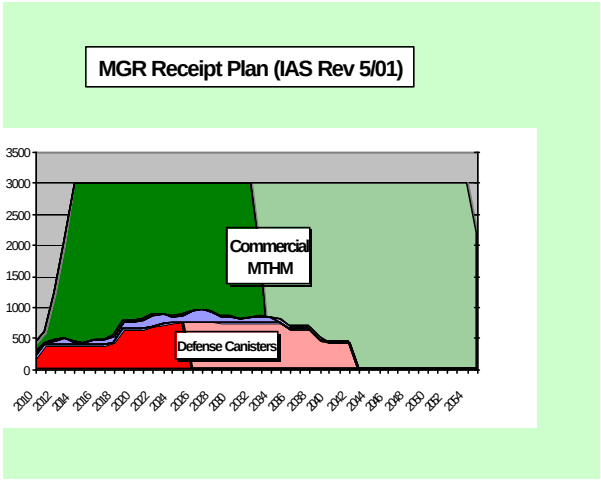
Proposed Template for DOE-Wide Systems Evaluation

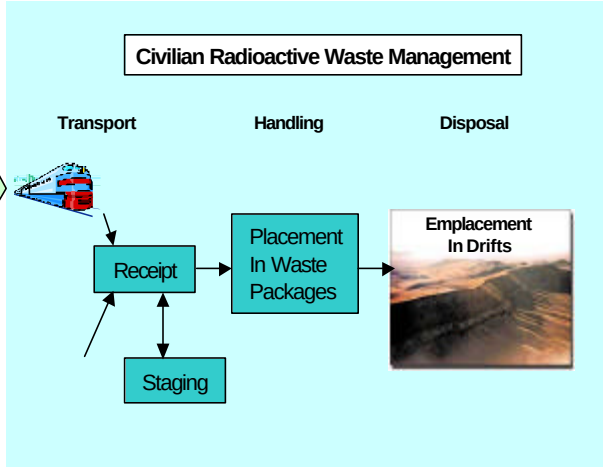
Integrated Disposition of DOE Material



Integrated Management / Disposition Alternatives







EM Optimized Storage
- Storage Only
- Independent of Repository Operations

Status Update of IAS Rev 5/01
- *RW status quo with revised projections*
- *Indefinite storage of Calcine and Pu*

"Stretch" LA in 12/04
- No Al SNF treatment
- Indefinite storage of Calcine and Pu

Performance-Based LA
- *TBD*

Potential Amendment in 2015
- Pu disposition at MGR
- Bare SNF Shipments (high quantity types)
- No Na SNF Treatment
- Calcine could be disposed at MGR

Reference Acceptance (IAS Rev 5/01)
- Site Recommended Waste Forms

WORKING DRAFT

Pre-Decisional Document

Purpose of Integrated Mgmt/Disposition Alternatives

- Respond to Under Secretary's request
- Respond to EM-1's request for optimized EM storage strategy independent of repository availability

- Provide cost/schedule data on range of shipping/receipt scenarios for DOE material
- Inform decisions on repository operating scenarios and transportation investments
- Inform prioritization of DOE material shipments and update to the Integrated Acceptance Schedule
- Perform sensitivity analyses on technical alternatives resulting in potential modified waste forms
- Identify "avoidable costs" via revised disposal decisions

Methodology

- Define set of scenarios that bounds alternatives for storage, treatment/packaging, shipment and disposal of DOE material
- Evaluate impacts of selected variables (waste form, acceptance rate, shipping and storage configurations, etc.) on these scenarios
- Reference case consistent with current RW planning and IAS, Rev 0
- EM Optimized Storage case provides contingency
- Other scenarios selected to evaluate preferred or likely alternatives
- Variables adjusted one-at-a time to evaluate impacts
- Data inputs simplified to facilitate analysis
- Impacts/results are “order of magnitude”

Methodology (continued)

- Data inputs:
  - EM baseline schedules for HLW, SNF and excess Pu storage, processing and disposal – with annual estimates of storage usage and cost, annual processing rates and cost
  - List of revised assumptions and changes (to reference baseline) for each scenario
  - PMP planning schedules
- Outputs
  - Cost and schedule baselines for each scenario
  - Cost and schedule curves for interim storage, treatment and "road ready" storage
  - Revised Integrated Acceptance Schedule per scenario
  - List of assumptions and qualitative summaries of each scenario

Methodology (continued)

- RW Variables
  - MGR design
    - MGR receipt/emplacement rate
    - Capacity for staging
  - MGR start of operations
  - Transportation mode and availability
  - Definition of acceptable waste form
- EM Variables
  - Number of canisters produced
  - Amount and cost of storage
  - Degree and rate of processing/packaging
  - Sequence and timing of shipments

Integrated Acceptance Schedule (Rev 0) Analysis

- Revised strategies have impacted total number of canisters – both in HLW and SNF
- Cancellation of Pu Immobilization Facility impacts number of HLW canisters
  - Alternative strategy impacts TBD
- Improved planning has both reduced projections and modified canister type
- Sites accelerated cleanup plans have revised shipping targets – these must be reconciled within RW receipt rate
- Focus on accelerated site closure and risk reduction requires review of shipping priority among EM sites

Placeholder for IAS

Open Issues

Technical:

- Documenting specific waste forms included within LA and bounded by YM EIS
- Determining impact of changes from IAS, Rev 0 on repository system

Programmatic:

- Brief Template and Alternatives to Senior Management
- Validate requirements for revised EM baselines
- Determine path forward for Corporate Project